Claims

What is claimed is:

1. A fuel-able electrochemical power system battery cell comprising:

an enclosed container means;

an electrolyte material disposed in said container means;

a non packaged electrochemical fuel supply means;

an exhausted electrochemical fuel storage means;

an exhausted electrochemical fuel removal means;

an electrical current removal means;

means for an internally configured and permanently affixed means for the formation, reaction, and reformation of a continuous electrochemical transport and current conduction belt for the conversion of electrochemical components into electrical energy in a continuous manner;

2. A continuous electrochemical transport and current conduction belt , wherein said belt comprises;

Two belts of conductive material means;

Means for a third belt of electrically nonconductive materials but porous for the purpose of allowing ion flow situated between the two conductive belts,

means for the insertion of electrochemical fuel in a plurality of forms on each side of the electrically nonconductive third and middle belt such that it is located between the third belt and a conduction belt;

means for the separation of the three belts and the forcing of spent and unspent electrochemical fuel away from the three belts, said spent electrochemical fuel being collected by circulation, filtration , and gravity means into the spent electrochemical fuel storage area, and said belts being clear of residual material now being ready for replenishment with new electrochemical fuel;

means wherein electrochemical reactant plates of the present invention are formed by layering the solid active electrochemical fuel components into a totally internal and

continuous loop carrier electrochemical transport and current conduction belt that maintains the required geometry of the reactants and carries them into the electrolyte

3. The fuel-able electrochemical power system battery cell of claim 1 wherein means to control the current and potential produced are provided by varying the speed and electrochemical replenishment rate of the continuous electrochemical transport and current conduction belt;

4. The fuel-able electrochemical power system battery cell of claim 1 wherein an electrochemically active compartment containing an aqueous, gaseous, or solid source of an electrolyte, a cathode and an anode formed by a continuous belt comprising an endless loop made of at least three sections, and electrical current pickup and supply to the external load is provided by means of the belt guide rollers;

5. The fuel-able electrochemical power system battery cell of claim 1 wherein a belt forming apparatus is provided for the forming of the electrochemistry, wherein the electrochemistry is automatically configured into the proper geometry for optimum battery performance without the need of external electrochemical transport and current conduction belts or external electrochemical packaging;

6. The fuel-able electrochemical power system battery cell of claim 1 wherein bulk electrochemical materials are added and their electrochemical reactants are removed with the resultant production of electrical potential and current;

7. The fuel-able electrochemical power system battery cell of claim 1 wherein electrochemical fuel may be fed into the battery cell in a number of forms including but not limited to liquids, pellets, paste, flakes, powder, granules, slugs, ribbon, chunks or any other form as may be contained or semi contained between two opposing planes as provided by the continuous electrochemical transport and current conduction belt providing the widest means for the use of any electrochemistry;

8. The fuel-able electrochemical power system battery cell of claim 1 wherein electrolyte can be added or removed or its concentration altered while the cell is in operation

9. The fuel-able electrochemical power system battery cell of claim 1 wherein means are provided for the electrochemical transport and current conduction belt velocity is determined by monitoring the battery voltage and current, and adjusting the electrochemical transport and current conduction belt velocity accordingly, thereby augmenting the amount of electrochemical reactant solid material remaining in the electrolyte and adding new material in predetermined increments as necessary.

10. The continuous electrochemical transport and current conduction belt of claim 2 wherein the conduction belt components of the electrochemical transport and current conduction belt act as the conductor to remove electrical current as it is produced.

11. The continuous electrochemical transport and current conduction belt of claim 2 wherein the spent electrochemical reactant material is removed from the electrochemical transport and current conduction belt by mechanically separating the electrochemical transport and current conduction belt layers and driving the electrolyte solution through the electrochemical transport and current conduction belt components, first from one side and then the other, to "blow" or force out any remaining reactant or spent reactant material.

12. The continuous electrochemical transport and current conduction belt of claim 2 wherein means are provided for the electrolyte to be continuously pumped through the belt to aid in the removal of spent electrochemical product buildup on the solid reactants of the cell.

13. The continuous electrochemical transport and current conduction belt of claim 2 wherein means are provided for the formation of a continuous electrochemical transport and current conduction belt battery cell, being subdivided into a plurality of electrochemical cells comprising a high current source at a desirable voltage.

14. The continuous electrochemical transport and current conduction belt of claim 2 wherein are provided means for wiping action due to continuous belt slippages continuously exposing new electrochemical fuel surface and allowing spent electrochemical material to fall out

15. The continuous electrochemical transport and current conduction belt of claim 2 wherein the center electrically non-conductive belt is wider than the electrically conducting belts.

16. The continuous electrochemical transport and current conduction belt of claim 2 wherein the center electrically non-conductive belt extends to both sides of the two electrically conductive belts.

17. The continuous electrochemical transport and current conduction belt of claim 2 wherein the electrochemical transport and current conduction belt is reloaded with the electrochemical components and mechanically layered into the proper geometry and the electrical production process is continuous and uninterrupted.

18. The continuous electrochemical transport and current conduction belt of claim 2 wherein the energy density and capacity of the fuel-able electrochemical power system battery cell is determined by the width of the electrochemical transport and current conduction belt and the corresponding width of the electrochemical load that can be realized, and the number of electrochemical transport and current conduction belt turns around the electrical pickoff rollers, and the length of the electrochemical transport and current conduction belt between the electrical pickoff rollers.

19. The continuous electrochemical transport and current conduction belt of claim 2 wherein means further comprising contact terminals for contacting the conducting belts

anode and cathode side on said continuous belt by contact with the rollers and belt guides are provided.

20. The continuous electrochemical transport and current conduction belt of claim 2 wherein said belt is continuous and said electrochemical fuel load is segmented into sections.

21. The continuous electrochemical transport and current conduction belt of claim 2 wherein said belt is continuous and said electrochemical fuel load is continuous.

22. The continuous electrochemical transport and current conduction belt of claim 2 wherein said electrical nonconductive divider belt has porous sections separated by nonporous sections.

23. The continuous electrochemical transport and current conduction belt of claim 2 wherein said electrical nonconductive divider belt is porous

24. The continuous electrochemical transport and current conduction belt of claim 2 wherein said electrical nonconductive divider belt is non-porous